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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,789	04/16/2004	Forrest J. Brown	PIPE-001	9072

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EXAMINER	
LUGO, DAVID B	
ART UNIT	**PAPER NUMBER**
2637	

DATE MAILED: 08/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/825,789	BROWN ET AL.	
	Examiner	Art Unit	
	David B. Lugo	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-80* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-80* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004 and 14 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. It is noted that the declaration lists the spelling of the third named inventor as "Charles Pownell" which is different form the spelling in the related PCT application, shown as "Charles Pownall."

Specification

2. The disclosure is objected to because of the following informalities:

a. Page 19, para. 47, line 5, "upper trace" should be --lower trace--.

b. Page 25, para. 60, line 6, "memory 30" should be --memory 32--.

c. Page 32, para. 77, the end of line 1 should be corrected.

d. Page 51, para. 117, line 4, "FI." should be --FIG.--.

Appropriate correction is required.

Claim Objections

3. Claims 42 and 74-80 are objected to because of the following informalities:

a. Claim 42, line 2, the third word should be corrected.

b. Claim 74 is drawn to an apparatus, but the body of the claim does not include any means for performing the recited steps.

Appropriate correction is required.

Double Patenting

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 1-80 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-80 of copending Application No. 11/104,301. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 5, 29-38, 43, 48-57, 62, 67, 68 and 71 are rejected under 35 U.S.C. 102(e) as being anticipated by van Nguyen U.S. Patent 6,621,426.

Regarding claims 1 and 67, van Nguyen discloses a method and apparatus for modulating a signal where a substantially sinusoidal waveform is generated as shown in Figure 2 where a first channel is encoded in a positive portion of the waveform 20, where the phase angles where encoding takes place are at zero degrees, for a range of 180 degrees, and a waveform having an amplitude defined by $Y=\sin\theta$, is generated for a number of portions of the waveform outside of the range from zero to 180 degrees (i.e. between 180 and 360 degrees), a waveform having an amplitude defined by $Y=\sin\theta$ is

used to encode a binary zero, and a waveform having an amplitude defined by a function other than Y=sin θ, namely Y=P*sin θ, is used to encode a binary 1, where P is the ratio of the amplitudes for the respective encoded waveforms. Further regarding claim 67, the means for performing the recited functions are shown in Figure 6 (see col. 6, lines 5-67).

Regarding claims 2, 5, 68 and 71, van Nguyen also shows that the phase angles can be selected to be spaced apart every 90 degrees, as shown in Fig. 4.

Regarding claims 29 and 48, van Nguyen discloses a communication system 400 in Fig. 7 comprising a first station 402 and a second station 404, each including an encoder 424 where a first channel is encoded in a positive portion of the waveform 20 as shown in Fig. 2, where the phase angles where encoding takes place are at zero degrees, for a range of 180 degrees, and a waveform having an amplitude defined by Y=sin θ, is generated for a number of portions of the waveform outside of the range from zero to 180 degrees (i.e. between 180 and 360 degrees), a waveform having an amplitude defined by Y=sin θ is used to encode a binary zero, and a waveform having an amplitude defined by a function other than Y=sin θ, namely Y=P*sin θ, is used to encode a binary 1, where P is the ratio of the amplitudes for the respective encoded waveforms, a transmitter 430 for transmitting the waveform over transmission medium 450, a receiver 410 for receiving the waveform, and a decoder 436 for extracting data from the waveform.

Regarding claims 30-38 and 49-57, van Nguyen states that transmission medium 450 may use wired transmission as well as any other signal transmission technique (col. 7, lines 54-58).

Regarding claims 43 and 62, van Nguyen also shows that the phase angles can be selected to be spaced apart every 90 degrees, as shown in Fig. 4.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 15, 16, 39-42 and 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Nguyen.

Regarding claim 15, van Nguyen discloses a method and apparatus for modulating a signal where a substantially sinusoidal waveform is generated as shown in Figure 2 where a first channel is encoded in a positive portion of the waveform 20, where the phase angles where encoding takes place are at zero degrees, for a range of 180 degrees, and a waveform having an amplitude defined by $Y=\sin\theta$, is generated for a number of portions of the waveform outside of the range from zero to 180 degrees (i.e. between 180 and 360 degrees), a waveform having an amplitude defined by $Y=\sin\theta$ is used to encode a binary zero, and a waveform having an amplitude defined by a function other than $Y=\sin\theta$, namely $Y=P*\sin\theta$, is used to encode a binary 1, where P is the ratio of the amplitudes for the respective encoded waveforms. van Nguyen does not disclose that a plurality of sinusoidal waveform each having a different frequency are generated. However, it is well known in the art to provide multiple carriers at different frequencies. It would have been obvious to one of ordinary skill in the art to generate multiple waveforms to increase transmission bandwidth.

Regarding claim 16, van Nguyen also shows that the phase angles can be selected to be spaced apart every 90 degrees, as shown in Fig. 4.

Regarding claims 39-41 and 58-60, van Nguyen discloses a communication system as described above, but does not expressly disclose that the first station is an earth station and the second station is extraterrestrial, where the second station is on board a spacecraft, or is a satellite. However, these limitations are well known in the art and are deemed design considerations that depend upon the communication system utilizing the modulation scheme, and fail to patentably distinguish over van Nguyen.

Regarding claims 42 and 61, van Nguyen discloses a system as described above, but does not expressly disclose a third station coupled to the second station including a receiver and a decoder. However, it is well known in the art to implement communication systems having a number of communication stations communicating with one another. Thus, it would have been obvious to one of ordinary skill in the art to use a third station having components similar to the first two stations in order to effect communication with an additional user.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Jordan U.S. Patent 6,574,284 discloses a communication bit encoding system and method where encoded bits are represented in a sinusoidal waveform having varying amplitude.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo
8/25/05

KHAI TRAN
PRIMARY EXAMINER